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**DAY OF WEEK EFFECTS IN INDIAN STOCK
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Day of Week Effects in Indian Stock Market: An Empirical Study

Ramesh Kumar¹ Dr. Virender Singh Poonia²

¹Assistant Professor, Deptt. Of Commerce, Shivaji College, Delhi University, Email-ID rameshmalik29@gmail.com,

²Associate Professor, Deptt. Of Commerce KUK, Email ID pooniakuk10@gmail.com

Abstract – There are many types of anomalies in the financial markets e.g. technical anomalies, fundamental anomalies and calendar anomalies. The area of research taken in present study focuses on calendar anomalies only. There have been intensive studies over all these anomalies and literature is full of empirical evidences. Calendar anomalies involve patterns in stock returns from year to year or month to month, while technical anomalies include momentum effect. Weekend day effects comes under the most popular calendar anomalies. The present paper does an empirical analysis of the week day effects in the Indian stock market. The data has been taken from BSE Sensex (a basket of 30 stocks), widely accepted as the true representative of the Indian stock market. The data taken for the study is divided into three phases viz. (i) 1998 to 2001, (ii) 2002 to 2007 (iii) 2010 to 2012. Years 2008 and 2009 have been excluded from the study being of high fluctuations. The data has been analyzed with the help of descriptive statistics, t-test and ANOVA. The results show that the week day effect exists only before rolling settlement viz. 1998 to 2001. No week day effect exists during the rest of the two periods viz. 2002 to 2007 and 2010 to 2012.

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INTRODUCTION

Weekend effect is a phenomenon in financial markets in which stock returns on Mondays are often significantly lower than those of the immediately preceding Friday. Some theories that explain the effect attribute the tendency for companies to release bad news on Friday after the markets close to depressed stock prices on Monday. Others state that the weekend effect might be linked to short selling, which would affect stocks with high short interest positions. Alternatively, the effect could simply be a result of traders' fading optimism between Friday and Monday.

A day-of-the-week effect is defined as at least one trading day in a week wherein returns for that day are statistically significantly different from at least one other day (Catherine, 2004). Monday tends to be the worst day to be invested in stocks. The first study documenting a weekend effect was by Fields (1931) in the Journal of Business at a time when stocks traded on Saturdays. Fields had also found in a 1934 study that the DJIA commonly advanced the day before holidays. Several studies have shown that returns on Monday are worse than other days of the week.

The weekend effect (also called the Monday Effect or the day-of-the-week effect) refers to the trend that stock returns are higher on Fridays compared to Mondays (Weekend Effect, n.d.; Hirt & Block, 2012). One explanation of the weekend effect is that short sellers increase selling pressure on Monday, which

leads to negative returns and the presence of the weekend effect. It is not suggested that the weekend effect has shifted from negative Monday returns to negative Tuesday returns, however, it appears as if some short sellers are taking advantage of negative Tuesday returns during our sample time period. A comparison among the returns of all the days of a week during a particular time period. The days of week which are popularly searched for this purpose are – Monday and Friday (First and last trading days of the week). However the comparison of returns can be done between any two days and of any day against the average return of all other days. A large number of studies have documented a day-of-the-week effect and other seasonal anomalies in asset returns in the stock markets around the world. One of these anomalies is the Monday seasonal effect, which typically occurs when asset returns are lower or negative on Mondays relative to other days of the week (Blau, et. al., 2007).

LITERATURE REVIEW

The most frequently weekday effects in the Indian stock market are – Friday effect and Monday effect. Angelovska (2013) carried out a study to find out the existence of seasonal behavior in return and volatility of Macedonian Stock Exchange and could not find enough evidence to reject the null hypothesis, or mean returns are not significantly different in the five trading days, the more advanced models like GARCH (1, 1), EGARCH and modified M-GARCH (1,1) and

M-EGARCH, found evidence about existence of a day of the week effect on Thursday.

Al-Jafari and Khaled (2012) investigated the anomalous phenomenon of the day-of-the-week effect on Muscat securities market and found the evidence of no presence of the day-of-the-week effect. However, unlike other developed markets, Muscat stock market seems to start positive and ends also positive with downturn during the rest of the trading days.

Swami (2011) found the day of week effect in Sri Lanka and Bangladesh. Garg et. al. (2011) studied the period from January 1998 to December 2007 for seasonal anomalies, which is further broken into two sub periods: (i) January 1998 to December 2001, and (ii) January 2002 to December 2007 and found about the presence of the Monday effect in India. Tangjitprom Nopphon (2011) found that the return is also abnormally high on Fridays but abnormally low on Mondays, which is addressed as weekend effect. Elango and Macki (2008) investigated whether the anomalous 'weekend effect' found in many developed and developing markets around the world is also present in the rapidly emerging Indian equity market. The results show that Monday returns are negative in one of the bench-mark indices, the NSE S&P Nifty confirming that the Indian Market is inefficient and could be exploited to maximize returns. Surprisingly, Wednesdays have yielded the highest mean returns across indices.

Chander and Mehta (2007) studied the anomalous patterns and found that Friday returns were highest and those on Monday were the lowest. It implied that arbitrage opportunities existed (for different trade settlement cycle on two exchanges, BSE and NSE) have disappeared consequent to the rolling settlement. Yalcin and Yucel (2006) studied day-of-the-week anomalies and concluded that, at lower levels of significance the common qualitative patterns in the estimates are extracted such that the higher returns are concentrated around Fridays, whereas volatility is highest on Mondays and lowest on Tuesdays and Fridays. Joshi (2006) Studied the weekend effect in stock returns is reexamined for Nepalese Stock market using broad index and industrial indices by accounting for the beginning of the week difference for the sample period 1995 to 2005. Raj and Kumari (2006) found that the negative Monday effect and the positive January effects are not found in India. Instead the Monday returns are positive while Tuesday returns are negative. Gao, and Kling (2005) studied the calendar effects in Chinese stock market, particularly monthly and daily effects and observed the change of the calendar effect over time. In Shanghai and Shenzhen, the year-end effect was strong in 1991 but disappeared later. As the Chinese year-end is in February, the highest returns can be achieved in March and April. Studying daily effects, the authors found that Fridays are profitable. Chinese investors are amateur speculator" who often embezzles business fund for private trading; thus, these funds are

used for short-term speculations before they are paid back prior to weekends.

Alya et. al. (2004) found that the Monday returns in the Egyptian stock market are positive and significant on average, but are not significantly different from returns of the rest of the week. Thus, no evidence was uncovered to support any daily seasonal patterns in the Egyptian stock market.

Brusa, and Schulman (2003) documented that Monday effect exists not only in broad stock market but also in most of the industrial indices for US stock market and thus is not an industry – specific phenomenon. The results of our studies indicate that the day-of-the-week effect doesn't exist in broad index but exists only in few of the industries and is thus the industry specific phenomenon. Patev et. al. (2003) examined the presence of the day-of-the-week effect anomaly in the Central European stock markets. Yalcin and Yucel (2003) investigated the day of the week calendar anomalies in the stock markets of 24 emerging economies. The study found significant evidence that the day of the week effects exist for 20 emerging stock markets in our sample for either market return or market volatility. Bhattacharya et. al. (2003) examined the stability of the day of the week effect in returns and volatility at the Indian capital market, covering the period January 1991 – September 2000 and found evidence in favor of significant positive returns on non-reporting Thursday and Friday.

Bildik (2001) examined the daily seasonalities in emerging Turkish Stock and Money Markets. Within this framework, day of -the week effects in overnight interest rate changes both in the Central Bank Interbank Money Market and the Istanbul Stock Exchange (ISE) Repo Market as well as in stock returns and liquidity at the ISE Stock Market are investigated. Results have shown the existence of significant day-of-the -week-effects both in overnight interest rate changes and stock returns. Kamara (1997) studied that the S&P 500 has no significant Monday effect after April 1982, yet it found the Monday effect undiminished from 1962-1993 for a portfolio of smaller U.S. stocks. Agrawal and Tandon (1994) found significantly negative returns on Monday, yet large and positive returns on Friday in 17 of the 18 countries studied. Balaban (1995) also show that the distribution of stock returns varies by day of the week for various countries. In sum, day of the week effect in stock returns is a common phenomenon and observed across different countries and different types of markets. Poshakwale (1996) found weak form efficiency and the day of the week effect in Bombay Stock Exchange over a period of 1987-1994. The results provide evidence of day of the week effect and that the stock market is not weak form efficient. The day of the week effect observed on the BSE pose interesting buy and hold strategy issues.

Broca (1992) showed that earning behaviour of Wednesday was negative to negate the efficient

market theory. Chaudhury (1991a) initiated research on this line to present some evidence on the market anomalies giving special focus on the day week effect. It found that day-of-the-week effect was prevailing in the Indian stock market. French (1980) analyzed daily returns of stocks for the period 1953-1977 and found that there is a tendency for returns to be negative on Mondays whereas they are positive on the other days of the week. It has been noted that these negative returns are "caused only by the weekend effect and not by a general closed-market effect".

RESEARCH METHODOLOGY:

The present research is descriptive in nature which tries to find out the characteristics of the phenomenon called week day effect. The data has been taken from BSE Sensex (a basket of 30 stocks), widely accepted as the true representative of the Indian stock market. The data taken for the study is divided into three phases viz. (i) 1998 to 2001, (ii) 2002 to 2007 (iii) 2010 to 2012. Years 2008 and 2009 have been excluded from the study being of high fluctuations. The data has been analyzed with the help of descriptive statistics, t-test and ANOVA.

CHECKING FOR THE STATIONARY OF THE SERIES:

Unit root test is applied to check whether the series has a unit root or not (whether). It is found that that in all the phases of data viz. a) from 1998 to 2001, b) 2002 to 2007 and c) 2010 to 2012, there is no unit root and the series is stationary. In all the mentioned cases the probability is 0.000 which is less than .05 hence it is concluded that there is no unit root.

Insert Table 1, 2 and 3 Here

Data Analysis and Interpretations:

Weekday effect on NSE data ranging from the time period of 2005 to 2010 and found that there is no impact of the weekdays on returns generated on NSE and "day of the week" effect does not exist Bhattacharya et al (2012). **Table 4** Presents that there is a significant difference in the mean returns of Monday and other days before rolling settlement system in the BSE for the period of 1998 to 2001. The mean return of Monday is .242630, rather the mean return of other days is -.078993.

Insert Table 4 Here

Table 5 shows the results of t-test w.r.t. the Monday effect of the same period. If we assume the equal

variances, the p value (.036) is less than the critical value, which is .05. Hence the difference in the return of Monday and other days is significant. But we have to consider the Levene's Test for Equality of Variances, where the value in Sig. column is .000 and lower than the critical value .05. Hence it is proved that the two series taken for t-test don't have equal means. In such a situation we have select the next option which is the next row where in the column 'Sig. (2-tailed)' is .072 which is more than .05, based on which it can be concluded that there is no significant difference between the return of Monday against the returns of the other days. In nutshell the difference in the return is quite high, but it is not statistically significant.

Insert Table 5 Here

Table 6 shows the mean returns of all the days individually. It can be seen from the observations that the mean returns of Thursday and Friday are very low as compare to the mean returns of Monday. To find out whether the mean difference of all days is significant or not ANOVA is applied (**refer table 7**). It is found from the table the sig. value is 0.13 with is below 0.05 hence we conclude that there is a significant difference among the mean returns of the various days of the week w.r.t. the period of 1998 to 2001.

Insert Table 6 and 7

With the help of post hoc analysis test (tukey HSD) of ANOVA given in **table 8** we find that the mean difference of Friday and Monday is significantly different the that is making the maximum contribution in the total difference between the mean returns of Monday and other days.

Insert Table 8 Here

WEEK DAY EFFECT FROM 2002 TO 2007

Table 9 shows the returns of Monday and other days after the rolling settlement system (during the period of 2002 to 2007). The results show higher returns on other days than Monday. The results are in the opposite direction than the period of 1998 to 2001 (before rolling settlement system). As per the t-test results given in **table 10** The significance (2-tailed) is .447 which is more than the critical value i.e. .05, which shows the difference between the returns of Monday and other days is not significant.

Insert Table 9 and 10 Here

Table 11 shows the mean returns of all the days individually for the period of 2002 to 2007. It can be seen from the observations that the mean returns of all other days of the week are more than the mean returns of Monday. Mean returns on Friday are maximum for this period. To find out whether the mean difference of all days is significant or not ANOVA is applied. It is found from the table the sig. value is 0.706 which is more than 0.05 hence we conclude that there is no significant difference among the mean returns of the various days of the week w.r.t. the period of 2002 to 2007 of BSE Sensex (see **table 12**).

Insert Table 11 and 12

With the help of post hoc analysis test (tukey HSD) of ANOVA given in **table 13** we find that the mean difference of all the days with each other is insignificant. Hence it can be concluded that there is no significant difference between any days with any other day of the week.

Insert Table 13 Here

Week Day effect during 2010 to 2012

Table 14 shows the returns of Monday is slightly higher than the other days of the week during the year 2010 to 2012. To check the level of significance t-test has been applied. The test results are given in **table 15**. In the significance column sig. (2-tailed) is .931 which is more than the critical value i.e. .05, which shows the difference between the returns of Monday and other days is not significant.

Insert Table 14 and 15 Here

Table 16 shows the mean returns of all the days individually for the period of 2010 to 2012. The mean returns of Thursday and Friday are negative and significantly less than the mean returns of Wednesday and Tuesday. Returns of Monday are also positive but the difference with the returns of other days is not so high.

Insert Table 16 Here

To find out whether the mean difference of all days is significant or not ANOVA is applied. It is found from

the table the sig. value is 0.546 which is more than 0.05 hence we conclude that there is no significant difference among the mean returns of the various days of the week w.r.t. the period of 2010 to 2012 of BSE Sensex (see **table 17**).

Insert Table 17 Here

With the help of post hoc analysis test (tukey HSD) of ANOVA given in **table 18** we find that the mean difference of all the days with each other is insignificant. Hence it can be concluded that there is no significant difference between any days with any other day of the week.

Insert Table 18 Here

FINDINGS AND CONCLUSION

The study finds the weekend effect (Monday effect) in the Indian stock market before rolling settlement (during the period 1998 to 2002). Tukey HSD (a post hoc test of ANOVA) confirms the significant difference between Monday and Friday returns during this period. During the same period we also find that the mean returns of Mondays as highest and the mean returns of Fridays as lowest. The mean returns of Tuesday, Thursday and Fridays are found negative and Monday and Wednesday returns are found positive during this period.

There are no evidences of Weekday effect during rest of the periods. However we find difference between means of any two days but that difference is not statistically significant. The results after rolling settlement (2002 to 2007) shows almost opposite trend than the results of before rolling settlement in BSE (1998 to 2001).

During 2002 to 2007 the mean returns of all the days are positive. The highest returns are earned on Fridays followed by Thursdays, Tuesdays and Wednesdays. The lowest returns are shown on Mondays during this period. However none of the differences in the returns is statistically significant (tested with tukey HSD).

The mean returns of different weeks take a different turn during 2010 to 2012. The mean returns during this period are negative on Fridays and Thursdays. The returns are highest on Wednesdays followed by Tuesdays and Mondays. The returns are lowest on Fridays; however none of the differences among the various days is significant.

In brief it can be concluded that the weekday effect does not exist in the Indian stock markets after the introduction of rolling settlement in year 2002.

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Table 1 Unit Root Test from 1998 to 2001

Null Hypothesis: D(RETURN) has a unit root				
Exogenous: Constant				
Lag Length: 8 (Automatic - based on SIC, maxlag=21)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-19.20121	0.0000
Test critical values:			1% level	-3.436885
			5% level	-2.864314
			10% level	-2.568299

Table 2 Unit Root Test from 1998 to 2001

Null Hypothesis: D(SERIES01) has a unit root			
Exogenous: Constant			
Lag Length: 12 (Automatic - based on SIC, maxlag=23)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-19.43825	0.0000
Test critical values:	1% level	-3.434561	
	5% level	-2.863287	
	10% level	-2.567748	
*MacKinnon (1996) one-sided p-values.			

Table 3 Unit Root Test from 2010 to 2012

Null Hypothesis: D(RETURN) has a unit root			
Exogenous: Constant			
Lag Length: 8 (Automatic - based on SIC, maxlag=19)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-16.12675	0.0000
Test critical values:	1% level	-3.439044	
	5% level	-2.865267	
	10% level	-2.568811	

Table 4 Monday Effect in Indian Stock Market 1998 to 2001

Days	N	Mean	Std. Deviation	Std. Error Mean
Monday	194	.242630	2.3158626	.1662692
Other days	784	-.078993	1.7955137	.0641255

Table 5 Independent Samples Test Monday Effect 1998 to 2001

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Equal variances assumed	14.192	.000	2.100	976	.036	.3216222	.1531347	.0211111	.6221333
Equal variances not assumed			1.805	253.304	.072	.3216222	.1782065	-.0293328	.6725773

Table 6 Descriptive Statistics (BSE Sensex 1998 to 2001)

	N	Mean	Std. Deviation
Monday	194	.242630	2.3158626
Tuesday	196	-.000990	1.7288126
Wednesday	197	.106850	1.8052210
Thursday	200	-.017407	1.7688775
Friday	191	-.415205	1.8492445

Table 7 ANOVA (BSE Sensex 1998 to 2001)

	Sum of Squares	d.f.	Mean Square	F	Sig.
Between Groups	46.432	4	11.608	3.200	.013
Within Groups	3529.046	973	3.627		
Total	3575.478	977			

Table 8 Turkey HSD (BSE Sensex 1998 to 2001)

(I) AllDays	(J) AllDays	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound
1.00	2.00	.2436196	.1928749	.714	-.283488	.770727
	3.00	.1357798	.1926312	.955	-.390662	.662221
	4.00	.2600365	.1919130	.657	-.264442	.784515
	5.00	.6578348(*)	.1941266	.007	.127306	1.188363
2.00	1.00	-.2436196	.1928749	.714	-.770727	.283488
	3.00	-.1078398	.1921354	.981	-.632926	.417247
	4.00	.0164169	.1914154	1.000	-.506702	.539536
	5.00	.4142152	.1936346	.204	-.114969	.943399
3.00	1.00	-.1357798	.1926312	.955	-.662221	.390662
	2.00	.1078398	.1921354	.981	-.417247	.632926
	4.00	.1242567	.1911698	.967	-.398191	.646705
	5.00	.5220550	.1933919	.055	-.006466	1.050576
4.00	1.00	-.2600365	.1919130	.657	-.784515	.264442
	2.00	-.0164169	.1914154	1.000	-.539536	.506702
	3.00	-.1242567	.1911698	.967	-.646705	.398191
	5.00	.3977983	.1926766	.236	-.128767	.924364
5.00	1.00	-.6578348(*)	.1941266	.007	-1.188363	-.127306
	2.00	-.4142152	.1936346	.204	-.943399	.114969
	3.00	-.5220550	.1933919	.055	-1.050576	.006466
	4.00	-.3977983	.1926766	.236	-.924364	.128767

* The mean difference is significant at the .05 level.

Table 9 Monday Effect (BSE Sensex 2002 to 2007)

Days	Mean	N	Std. Deviation	Variance
Monday	.068130	302	1.5580176	2.427
Other Days	.135880	1192	1.3351768	1.783
Total	.122185	1494	1.3828321	1.912

Table 10 Independent Samples Test (BSE Sensex 2002 to 2007)

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	d.f.	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Equal variances assumed	4.465	.035	-.760	1492	.447	-.0677509	.0890973	-.2425202	.1070183
Equal variances not assumed			-.694	419.759	.488	-.0677509	.0976389	-.2596731	.1241712

Table 11 Descriptive Statistics (BSE Sensex 2002 to 2007)

Days	N	Mean	Std. Deviation
Monday	302	.068129	1.5580176
Tuesday	298	.105048	1.3181733
Wednesday	296	.095196	1.2404898
Thursday	301	.121517	1.3742774
Friday	297	.221921	1.4040901

Table 12 ANOVA (BSE Sensex 2002 to 2007)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.140	4	1.035	.541	.706
Within Groups	2850.811	1489	1.915		
Total	2854.951	1493			

Table 13 Tukey HSD (BSE Sensex 2002 to 2007)

(I) All Days	(J) All Days	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval
		Lower Bound	Upper Bound		Lower Bound
1.00	2.00	-.0369184	.1129798	.998	-.345480 .271643
	3.00	-.0270665	.1131718	.999	-.336152 .282019
	4.00	-.0533876	.1126961	.990	-.361174 .254399
	5.00	-.1537916	.1130755	.653	-.462615 .155031
2.00	1.00	.0369184	.1129798	.998	-.271643 .345480
	3.00	.0098519	.1135471	1.000	-.300259 .319963
	4.00	-.0164693	.1130730	1.000	-.325285 .292347
	5.00	-.1168732	.1134512	.841	-.426722 .192976
3.00	1.00	.0270665	.1131718	.999	-.282019 .336152
	2.00	-.0098519	.1135471	1.000	-.319963 .300259
	4.00	-.0263212	.1132648	.999	-.335661 .283019
	5.00	-.1267251	.1136423	.799	-.437096 .183646
4.00	1.00	.0533876	.1126961	.990	-.254399 .361174
	2.00	.0164693	.1130730	1.000	-.292347 .325285
	3.00	.0263212	.1132648	.999	-.283019 .335661
	5.00	-.1004040	.1131686	.902	-.409481 .208673
5.00	1.00	.1537916	.1130755	.653	-.155031 .462615
	2.00	.1168732	.1134512	.841	-.192976 .426722
	3.00	.1267251	.1136423	.799	-.183646 .437096
	4.00	.1004040	.1131686	.902	-.208673 .409481

Table 14 Monday Effect (BSE Sensex 2010 to 2012)

Days	N	Mean	Std. Deviation	Std. Error
Monday	150	.020591	1.1256459	.0919086
Other Days	593	.011840	1.0957126	.0449955

Table 15 Independent Samples Test - Monday Effect (BSE Sensex 2010 to 2012)

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
			Lower	Upper	Lower	Upper	Lower	Upper		
Equal variances assumed	.084	.771	.087	741	.931	.0087504	.1006985	-.1889379	.2064388	
Equal variances not assumed			.086	225.720	.932	.0087504	.1023318	-.1928973	.2103982	

Table 16 Group Statistics of Weekdays returns (BSE Sensex 2010 to 2012)

Weekday	Mean	N	Std. Deviation
Monday	.020591	150	1.1256459
Tuesday	.078539	150	1.0743261
Wednesday	.103687	145	1.0221649
Thursday	-.062272	148	1.0781656
Friday	-.070520	150	1.1976507
Total	.013607	743	1.1010598

Table 17 ANOVA Week day Returns (BSE Sensex 2010 to 2012)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.730	4	.933	.768	.546
Within Groups	895.821	738	1.214		
Total	899.551	742			

Table 18 Tukey HSD (BSE Sensex 2010 to 2012)

(I) Weekday	(J) Weekday	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval
		Lower Bound	Upper Bound		Lower Bound
1.00	2.00	-.0579487	.1272189	.991	-.405833 .289936
	3.00	-.0830964	.1283110	.967	-.433967 .267774
	4.00	.0828630	.1276480	.967	-.266195 .431921
	5.00	.0911104	.1272189	.953	-.256774 .438995
2.00	1.00	.0579487	.1272189	.991	-.289936 .405833
	3.00	-.0251477	.1283110	1.000	-.376018 .325723
	4.00	.1408118	.1276480	.805	-.208246 .489870
	5.00	.1490592	.1272189	.768	-.198825 .496944
3.00	1.00	.0830964	.1283110	.967	-.267774 .433967
	2.00	.0251477	.1283110	1.000	-.325723 .376018
	4.00	.1659594	.1287364	.698	-.186075 .517993
	5.00	.1742068	.1283110	.655	-.176664 .525077
4.00	1.00	-.0828630	.1276480	.967	-.431921 .266195
	2.00	-.1408118	.1276480	.805	-.489870 .208246
	3.00	-.1659594	.1287364	.698	-.517993 .186075
	5.00	.0082474	.1276480	1.000	-.340810 .357305
5.00	1.00	-.0911104	.1272189	.953	-.438995 .256774
	2.00	-.1490592	.1272189	.768	-.496944 .198825
	3.00	-.1742068	.1283110	.655	-.525077 .176664
	4.00	-.0082474	.1276480	1.000	-.357305 .340810